

## Complete Summary

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### TITLE

Abdominal aortic aneurysm (AAA) repair: volume.

### SOURCE(S)

AHRO quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRO); 2004 Jul 21. 172 p.(AHRO Pub; no. 02-R0204).

## Brief Abstract

### DESCRIPTION

This measure assesses the raw volume of provider-level abdominal aortic aneurysm (AAA) repair (surgical procedure).

As a volume indicator, AAA repair is a proxy measure for quality and should be used with other indicators.

### RATIONALE

Abdominal aortic aneurysm (AAA) repair is a relatively rare procedure that requires proficiency with the use of complex equipment; and technical errors may lead to clinically significant complications, such as arrhythmias, acute myocardial infarction, colonic ischemia, and death. Higher volumes have been associated with better outcomes (e.g., lower mortality), which represent better quality.

### PRIMARY CLINICAL COMPONENT

Abdominal aortic aneurysm repair; procedure volume

### DENOMINATOR DESCRIPTION

This measure applies to providers of abdominal aortic aneurysm (AAA) repair (one provider at a time).

### NUMERATOR DESCRIPTION

Discharges with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) abdominal aortic aneurysm (AAA) repair procedure codes\* of 3834, 3844, and 3864 in any procedure field with a diagnosis code of

AAA in any field. Exclude Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborns and other neonates).

\*Refer to Appendix A of the original measure documentation for details.

## Evidence Supporting the Measure

### PRIMARY MEASURE DOMAIN

Structure

### SECONDARY MEASURE DOMAIN

Outcome

### EVIDENCE SUPPORTING THE MEASURE

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

## Evidence Supporting Need for the Measure

### NEED FOR THE MEASURE

Wide variation in capacity

### EVIDENCE SUPPORTING NEED FOR THE MEASURE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

## State of Use of the Measure

### STATE OF USE

Current routine use

### CURRENT USE

External oversight/State government program  
Internal quality improvement  
Quality of care research

## Application of Measure in its Current Use

### CARE SETTING

Hospitals

#### PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Physicians

#### LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

#### TARGET POPULATION AGE

Does not apply to structure measures

#### TARGET POPULATION GENDER

Does not apply to structure measures

#### STRATIFICATION BY VULNERABLE POPULATIONS

Does not apply to structure measures

### Characteristics of the Primary Clinical Component

#### INCIDENCE/PREVALENCE

Abdominal aortic aneurysm (AAA) repair is an uncommon cardiovascular procedure--only 48,600 were performed in the United States in 1997.

#### EVIDENCE FOR INCIDENCE/PREVALENCE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

#### ASSOCIATION WITH VULNERABLE POPULATIONS

Unspecified

#### BURDEN OF ILLNESS

Unspecified

#### UTILIZATION

Unspecified

#### COSTS

Unspecified

## Institute of Medicine National Healthcare Quality Report Categories

### IOM CARE NEED

Getting Better

### IOM DOMAIN

Effectiveness

## Data Collection for the Measure

### CASE FINDING

Does not apply to structure measures

### DENOMINATOR SAMPLING FRAME

Does not apply to structure measures

### DENOMINATOR (INDEX) EVENT

Does not apply to structure measures

### DENOMINATOR INCLUSIONS/EXCLUSIONS

#### Inclusions

This measure applies to providers of abdominal aortic aneurysm (AAA) repair (one provider at a time).

#### Exclusions

Unspecified

### NUMERATOR INCLUSIONS/EXCLUSIONS

#### Inclusions

Discharges with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) abdominal aortic aneurysm (AAA) repair procedure codes\* of 3834, 3844, and 3864 in any procedure field with a diagnosis code of AAA in any field.

\*Refer to Appendix A of the original measure documentation for details.

#### Exclusions

Exclude Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborns and other neonates).

#### DENOMINATOR TIME WINDOW

Does not apply to structure measures

#### NUMERATOR TIME WINDOW

Fixed time period

#### DATA SOURCE

Administrative data

#### LEVEL OF DETERMINATION OF QUALITY

Does not apply to structure measures

#### OUTCOME TYPE

Proxy for Outcome

#### PRE-EXISTING INSTRUMENT USED

Unspecified

### Computation of the Measure

#### SCORING

Count

#### INTERPRETATION OF SCORE

Better quality is associated with a higher score

#### ALLOWANCE FOR PATIENT FACTORS

Does not apply to structure measures

#### STANDARD OF COMPARISON

External comparison at a point in time

External comparison of time trends

Internal time comparison

Prescriptive standard

#### PRESCRIPTIVE STANDARD

Benchmark:

- Threshold 1: 10 or more procedures per year
- Threshold 2: 32 or more procedures per year

## EVIDENCE FOR PRESCRIPTIVE STANDARD

Hannan EL, Kilburn H Jr, O'Donnell JF, Bernard HR, Shields EP, Lindsey ML, Yazici A. A longitudinal analysis of the relationship between in-hospital mortality in New York State and the volume of abdominal aortic aneurysm surgeries performed. *Health Serv Res*1992 Oct;27(4):517-42.

Kazmers A, Jacobs L, Perkins A, Lindenauer SM, Bates E. Abdominal aortic aneurysm repair in Veterans Affairs medical centers. *J Vasc Surg*1996 Feb;23(2):191-200.

Nationwide inpatient sample and state inpatient databases. Healthcare Cost and Utilization Project (HCUP). [database]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 1995-1997.[Various pagings].

Pronovost PJ, Jenckes MW, Dorman T, Garrett E, Breslow MJ, Rosenfeld BA, Lipsett PA, Bass E. Organizational characteristics of intensive care units related to outcomes of abdominal aortic surgery . *JAMA*1999 APR 14;281(14):1310-7.

## Evaluation of Measure Properties

### EXTENT OF MEASURE TESTING

Each potential quality indicator was evaluated against the following six criteria, which were considered essential for determining the reliability and validity of a quality indicator: face validity, precision, minimum bias, construct validity, fosters real quality improvement, and application. The project team searched Medline for articles relating to each of these six areas of evaluation. Additionally, extensive empirical testing of all potential indicators was conducted using the 1995-97 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and Nationwide Inpatient Sample (NIS) to determine precision, bias, and construct validity. Table 2 in the original measure documentation summarizes the results of the literature review and empirical evaluations on the Inpatient Quality Indicators. Refer to the original measure documentation for details.

### EVIDENCE FOR RELIABILITY/VALIDITY TESTING

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

## Identifying Information

### ORIGINAL TITLE

Abdominal aortic aneurysm repair volume (IQI 4).

## MEASURE COLLECTION

[Agency for Healthcare Research and Quality \(AHRQ\) Quality Indicators](#)

## MEASURE SET NAME

[Agency for Healthcare Research and Quality \(AHRQ\) Inpatient Quality Indicators](#)

## DEVELOPER

Agency for Healthcare Research and Quality

## ADAPTATION

Measure was not adapted from another source.

## RELEASE DATE

2002 Jun

## REVISION DATE

2004 Jul

## MEASURE STATUS

Please note: This measure has been updated. The National Quality Measures Clearinghouse is working to update this summary.

## SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jul 21. 172 p.(AHRQ Pub; no. 02-R0204).

## MEASURE AVAILABILITY

The individual measure, "Abdominal Aortic Aneurysm Repair Volume (IQI 4)," is published in "AHRQ Quality Indicators. Guide to Inpatient Quality Indicators: Quality of Care in Hospitals -- Volume, Mortality, and Utilization." An update of this document is available in [Portable Document Format \(PDF\)](#) and a [zipped WordPerfect\(R\) file](#) from the Agency for Healthcare Research and Quality (AHRQ) Web site.

For more information, please contact the QI Support Team at [support@qualityindicators.ahrq.gov](mailto:support@qualityindicators.ahrq.gov).

## COMPANION DOCUMENTS

The following are available:

- "AHRQ Inpatient Quality Indicators Software (Version 2.1 Revision 3)" (Rockville, [MD]: AHRQ, 2004 Jul 21) and its accompanying documentation can be downloaded from the [Agency for Healthcare Research and Quality \(AHRQ\) Web site](#). (The software is available in SPSS- and SAS-compatible formats.)
- Guidance for using the AHRQ quality indicators for hospital-level public reporting or payment. Rockville (MD): Agency for Healthcare Research and Quality; 2004 Aug. 24 p. This document is available from the [AHRQ Web site](#).
- "AHRQ Inpatient Quality Indicators - Interpretative Guide" (Irving [TX]: Dallas-Fort Worth Hospital Council Data Initiative; 2002 Aug 1. 9 p.) is available. This guide helps you to understand and interpret the results derived from the application of the Inpatient Quality Indicators software to your own data and is available from the [AHRQ Web site](#).
- "Refinement of the HCUP Quality Indicators" (Rockville [MD]: AHRQ, 2001 May. Various pagings. [Technical review; no. 4]; AHRQ Publication No. 01-0035) is available. This document was prepared by the UCSF-Stanford Evidence-based Practice Center for AHRQ and can be downloaded from the [AHRQ Web site](#).

#### NQMC STATUS

This NQMC summary was completed by ECRI on August 19, 2004. The information was verified by the measure developer on October 13, 2004.

#### COPYRIGHT STATEMENT

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